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Energy and Environment Cabinet
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R. Bruce Scott
Commissioner

STATE PLANNING AND ENVIRONMENTAL ASSESSMENT REPORT (SPEAR)

Regional Facilities Plan for the City of Campbellsville
City of Campbellsville, Campbellsville, Kentucky
AI: 3998; PLN20100001

The City of Campbellsville has submitted for approval by the Energy and Environment Cabinet (EEC) a project titled *Regional Facilities Plan for the City of Campbellsville, Campbellsville, Kentucky* dated July, 2009. In accordance with KRS Chapter 224 and 401 KAR 5:006, the Department for Environmental Protection (DEP) has prepared a State Planning and Environmental Assessment Report (SPEAR) that summarizes the project.

The DEP is required to conduct reviews of the potential environmental impacts of projects applying for funding by the Clean Water State Revolving Fund in accordance with the procedures contained in the State Revolving Fund Operating Agreement between the Environmental Protection Agency Region IV and the Commonwealth of Kentucky. The DEP has included this required review in the attached SPEAR. The DEP has determined that the projects in the SPEAR will not have a significant effect on the environment when all mitigative measures in Section F of the SPEAR are implemented.

The SPEAR contains information supporting this determination in the following sections: A) Project Summary; B) Existing Environment; C) Existing Wastewater Facilities; D) Need for Project; E) Alternatives Analysis; F) Environmental Consequences, Mitigative Measures; G) Public Participation and User Rates; and H) Sources Consulted.

Interested persons are encouraged to submit comments on this SPEAR within 40 days of the above date. The EEC will take no action on this project until after the State Clearinghouse review and public comment period has ended, and will evaluate all comments before a decision is made to proceed with approval of the project or awarding of SRF funds for this project. Send comments to Ms. Anshu Singh, Supervisor, Wastewater Planning Section, Water Infrastructure Branch, Division of Water, 200 Fair Oaks 4th Floor, Frankfort, Kentucky 40601, or by e-mail to anshu.singh@ky.gov, or call her at (502) 564-3410, extension 4805.

Sincerely,

R. Bruce Scott, Commissioner
Department for Environmental Protection

RBS/AS

STATE PLANNING AND ENVIRONMENTAL ASSESMENT REPORT (SPEAR)
City of Campbellsville, Taylor County, Kentucky
Regional Facilities Plan for the City of Campbellsville, Campbellsville, Kentucky
AI # 3998; PLN 20090001

A. Proposed Project and Funding Status

Project Summary: The wastewater treatment plant (WWTP) and collection system are owned by the City of Campbellsville and operated through the Campbellsville Municipal Water and Sewer System in Taylor County, Kentucky. The city submitted a Wastewater Facilities Plan entitled, "*Regional Facility Plan for the City of Campbellsville, Campbellsville, Kentucky*" (July, 2009), in which it has proposed plans to conduct sanitary sewer evaluation survey, renovate the treatment system and extend the collection system to un-sewered portions of the planning area to meet its 20 year wastewater needs.. The planning period consists of the following three phases and the planning area is delineated in Map 2.

Phase I (0-2 years): During Phase I sewer service will be extended to serve the Campbellsville Bypass area by installing 20,000 linear feet of 8-inch sanitary sewer main, and 93 manholes (Map 6). In addition, some renovation work at the WWTP and Elmhurst Lift Station will also be accomplished. The proposed renovations at the WWTP include installation of new recirculation pumps, renovation of the existing headworks, and replacement of the existing secondary clarifiers. The existing pumps at the Elmhurst lift station will be replaced with non-clog submersible pumps. The total estimated cost of all the projects is $1,894,600.

Phase II (3-10 years): During Phase II a sanitary sewer evaluation survey (SSES) will be conducted to assess the excessive and unwanted infiltration and inflow. The SSES is estimated to cost $80,000. In addition, sewer service will be extended to new developments (Map 2).

Phase III (11-20 years): Phase III consists of sewer service extensions into remainder of the planning area (Map 2).

Monarch Engineering, Inc prepared the facilities plan for the city of Campbellsville. The project is located in the Lake Cumberland Area Development District and within the area covered by the Columbia Regional Office of the Division of Water (DOW).

Funding Status: The City of Campbellsville intends to fund the phase I projects through a combination of Environmental Protection Agency Grants and City of Campbellsville Funds.

Funding Source	Amount
U.S. Environmental Protection Agency	$ 955,600
City of Campbellsville Funds	$ 939,000
Total	$ 1,894,600

B. Existing Environment

Topography: Taylor County is in the Mississippian Plateaus Region (also known as the Pennyroyal or Pennyrile) of south-central Kentucky. The area is a moderately dissected region composed of low-relief plateaus and cuestas and is predominantly underlain by relatively pure Mississipian-age limestone. Karst topography and hydrology is well developed in much of the area. Broad, flat-topped ridges characterize the central part of the county, but elsewhere the topography is generally rolling to hilly. The valleys of the Green River and some of its tributaries are relatively broad and flat. The topography of the planning area that is not served by the City of Campbellsville's sewer collection system is a combination of mountainous regions, gently rolling hills with narrow valleys, and also flat areas that contain depressions and sinkholes which are prevalent in the karst geological areas. Elevations range from nearly 1,100 feet mean sea level (msl) in the northern section of the planning area to an elevation of 700 feet msl which is the elevation of the Green River Reservoir. A majority of the planning area lies in the elevation range of 840 to 1,000 feet msl.

Geology: Geological formations within the regional planning area are limestones of the Salem, Warsaw, Harrodsburg Formations and Fort Payne Formation. These formations underlie gently rolling uplands. They form steep bluffs where the limestone overlies rocks of Osagean age. In some areas numerous small sinkholes occur in the Warsaw Formation. The Fort Payne underlies dissected rolling uplands and forms steep valley sides in maturely dissected topography. Small valleys are steep and V-shaped. Siltstone and chert form discontinuous ledges on hillsides.

Soils: A majority of the soils in the planning area are composed of four main series, including Frederick silt loam, Mountview silt loam, Dickson silt loam and Frankstown silt loam. The Mountview and Dickson soil series have a somewhat limited suitability rating for sewage lagoons and septic tank absorption fields. The Federick soil series has a very limited suitability rating for sewage lagoons and septic tank absorption fields. The Frankstown soil series has a very limited suitability rating for sewage lagoons and a somewhat limited suitability rating for septic tank absorption fields. All the soil series in the planning area have a very limited suitability rating for disposal of wastewater by rapid infiltration, overland flow treatment of wastewater, and slow rate treatment of wastewater.

Surface Waters: The planning area is located within the Green and Tradewater River Basin Management Unit and within the Robinson Creek, Big Pitman Creek, and Meadow Creek watershed boundaries. The planning area is drained by portions of Little Pitman Creek, Buckhorn Creek, Stone Quarry Creek, Sprat Branch, Trace Fork, several unnamed tributaries and Campbellsville City Reservoir. The City of Campbellsville's WWTP plant discharges into Buckhorn Creek near its confluence with Little Pitman Creek, which is a primary tributary of the Green River Reservoir. The southeastern border of the planning area coincides with the western boundary of the Green River Reservoir. All of the surface water drainage that occurs within the planning area flows to the Green River Reservoir and the City's WWTP. A small portion of the headwater of Beaver Creek is encompassed within the planning area.

Water quality assessments relevant to the planning area are detailed in Table 1. Currently, there are no TMDL's planned, approved or under development for this portion of the Big Pitman Creek watershed.

Table 1 Assessed Waterbodies Supporting Designated Use(s) (source: 2008 Integrated Report)	
Waterbody & Segment	**Fully Supported Designated Use(s)**
Campbellsville City Reservoir	Warmwater Aquatic Habitat
Green River Reservoir	Secondary Contact Recreation, Warmwater Aquatic Habitat, Drinking Water Supply
Little Pitman Creek 0.0 to 10.1	Warmwater Aquatic Habitat
Little Pitman Creek 10.1 to 11.2	Secondary Contact Recreation, Warmwater Aquatic Habitat
Trace Fork of Little Pitman Creek 1.3 to 2.3	Drinking Water Supply

Impaired segments of assessed waterbodies not supporting designated use(s) are listed in Table 2.

Table 2. Assessed Waterbodies **not** Supporting Designated Use(s) (source: 2008 Integrated Report)			
Waterbody & Segment	**Impaired Use Assessment**	**Causes**	**Sources**
Campbellsville City Reservoir	Non Support Secondary Contact Recreation	Sedimentation/Siltation	Natural Sources; Upstream Source
Green River Reservoir	Partial Support Fish Consumption	Mercury in Fish Tissue; PCB in Fish Tissue	Industrial Point Source Discharge; Source Unknown
Little Pitman Creek 0.0 to 10.1	Non Support Primary Contact Recreation; Pathogen TMDL, Fecal coliform; Partial Support Secondary Contact Recreation	Fecal Coliform	Source Unknown
Little Pitman Creek 10.1 to 11.2	Partial Support Secondary Contact Recreation; Pathogen TMDL, Fecal coliform	Fecal Coliform	Source Unknown
Little Pitman Creek 10.1 to 11.2	Non Support Primary Contact Recreation	Fecal Coliform	Source Unknown

The TMDL of Little Pitman Creek was under development prior to 2008, and was planned for public notice during 2008.

Amendments to the Safe Drinking Water Act require the development of long-range water-supply plans for each county and its municipalities and public water systems. This regulation requires that counties develop county or regional water supply plans that assess the quantity of water used by their public water systems and formulate protection plans for the source waters used by those systems. With respect to source water assessment and protection program (SWAPP), the regulation

specifically requires public participation, delineation of source water watersheds and recharge areas for each public water supply source, a contaminant source inventory with relative susceptibility (risk) assessment and recommendations for protection. The wellhead protection program is designed to assist those communities relying on groundwater to develop groundwater protection strategies. Wellhead Protection Areas (WHPAs) are designated land areas around a well or spring delineated through the collection of geologic and hydrogeologic data. Within these designated source water and wellhead protection areas, zones may be designated to encompass activities closest to the intake with the area of highest concern and least travel time, to areas further away and of less concern. Zone I is commonly called the Critical Zone; Zone II may be called the Zone of Responsibility, and Zone III may be called the Zone of Potential Impact. These zones provide a means by which contaminants may be inventoried and managed. There are portions of the planning area designated as SWAPP Zone I, Zone II, and Zone III. The planning area region is rated as having moderate to high groundwater sensitivity. There are no WHPAs within the planning area and it is not within a designated DOW priority watershed. The planning area is characterized as having karst topography and sink holes.

Campbellsville Municipal Water System is the only water provider serving the planning area. The drinking water for the city comes from the Green River Reservoir which lies south of the planning area.

Groundwater: The quality of groundwater in the Mississippian Plateaus Region varies. In Taylor County, water obtained from most drilled wells in limestone aquifers is considered hard. Common salt and hydrogen sulfide are the two naturally occurring constituents most often encountered in objectionable amounts in groundwater in the county. According to the Groundwater Section of the Kentucky Division of Water, Taylor County has areas of low-moderate to high sensitivity to groundwater pollution. There are several permitted groundwater wells within the boundaries of the planning area that could receive added protection by eliminating failing septic systems.

C. Existing Wastewater Facilities

The City of Campbellsville owns and operates 4.2 mgd WWTP that was constructed in 1977. Since the initial construction of the treatment plant in 1977, there have been some upgrades to the existing WWTP, including the renovation of the headworks in 2001.The existing treatment process is the conventional extended aeration method with disinfection of the final effluent. The treatment plant consists of a raw sewage pump station equipped with four sewage pumps, a three channel headworks with two primary channels consisting each of a disc type mechanical screen and dewatering auger, and the bypass channel with a manual bar screen, three oxidation ditches, three secondary clarifiers, chlorination, post aeration, dechlorination, effluent flow measurement, and sludge digestion along with sludge dewatering. The WWTP discharges pursuant to KPDES Permit Number KY0054437 to Buckhorn Creek at mile point 0.1. The average annual flow from October 2008 to October 2009 was 2.7 mgd with an average peak flow of 5.2 mgd. Monthly average effluent limits that must be met by the existing WWTP are listed in Table 3:

Table 3: Monthly Average Effluent Limits	
Parameter	**Limits**
$CBOD_5$ (mg/l)	20
TSS (mg/l)	30
Ammonia-Nitrogen (mg/l)	4 (summer)/10(winter)
Dissolved Oxygen (mg/l)	Not less than 7
Fecal Coliform (colonies/100 ml)	200
Total Residual Chlorine ((mg/l)	0.011
Total Phosphorus (mg/l)	Report

Collection System

The City of Campbellsville's collection system consists of approximately 400,000 feet of gravity sewers varying in size from 6 to 27 inch; approximately 31,000 feet of force main, varying in size from 2 to 8-inches; fifteen lift stations and over 800 manholes. Most of the collection lines were initially constructed during the 1950's. Based on calculations conducted by Monarch Engineering, Inc., the City exceeds both the maximum allowable inflow and infiltration (I&I) amounts based on allowable annual average of daily flows of 120 gallons per capita per day and allowable maximum flow received during a 24 hour period of 275 gallons per capita per day. The city has proposed to conduct a sanitary sewer evaluation survey during Phase II to correct the I&I problem.

D. Need for the Project

The proposed projects have the potential to deliver several positive environmental benefits. The proposed extension of sewer collections lines to serve the Campbellsville Bypass would result in the elimination of potentially existing faulty or failing on-site wastewater treatment systems within the planning area that could potentially prevent pollutants from contaminating the City's source water supply and the potential for health problems resulting from human exposure to untreated sewage. Renovation of the WWTP through the installation of new, bigger secondary clarifiers will allow the plant to better treat the City's sewage and will allow for a cleaner effluent to be discharged into Buckhorn Creek. The renovation of the Elmhurst Lift Station will prevent further overflowing of the lift station during heavy rainfall events. This will prevent sewage from possibly overflowing the lift station and contaminating local groundwater or other bodies of water near the lift station, including the Campbellsville City Reservoir.

E. Alternatives Analysis

Collection System Alternatives:

Alternative No. 1 - No Action Alternative: This alternative involves no expansion or modification to the existing collection system within the city of Campbellsville planning area. This could result in the installation of more septic systems which could further degrade the water quality in the area because most of the soils within the planning area are not conducive to on-site systems disposal. This alternative is rejected because it is not environmentally responsible and does not meet the wastewater treatment needs within the planning area.

Alternative No. 2- Small Diameter Pressure Sewer System. This alternative involves construction of pressure sewer system to serve the project area. This type of system would require a small grinder pump station for each business, which would require maintenance by the City for 20 additional stations. The total project cost for this alternative is estimated to be $824,500 with a 20 year present worth of $1,006,529. This alternative is rejected because it is not cost effective.

Alternative No. 3- Conventional Gravity Collection System. This alternative involves expansion of the collection system using conventional gravity method. The project will include construction of 2,500 feet of 12-inch PVC sewer line, 3,400 feet of 8-inch PVC sewer line, and approximately 35 manholes. Wastewater services will be extended to areas outside the city limits that are estimated to have enough growth in the next decade to warrant the construction of sewer system extensions during Phase II and III. The total project cost for Phase I is estimated to be $682,200 with a 20 year present worth of $762,302.80. **This is the selected alternative because it is the most cost effective.**

F. Environmental Consequences, Mitigative Measures

Impacts on Historic Properties and Archeological Sites:
The Kentucky Heritage Council (KHC) was solicited for comments regarding the proposed project in a letter dated October 8, 2009. The KHC in a letter dated November 4, 2008, stated that the vast majority of the project will take place in previously disturbed right-of-way. As such the proposed project will not impact any National Register properties or sites and that are No Historic Properties Present within the undertaking's area of potential impact.

Impacts on Threatened and Endangered Species:
The U.S. Fish and Wildlife Service was solicited for comments regarding the proposed project in a letter dated November 21, 2008. The U.S. Fish and Wildlife Service (USFWS), in a letter stamped December 1, 2008 stated no significant adverse impacts to wetlands or federally listed endangered or threatened species are anticipated from this proposal.

Impacts on Wetland and Streams:
The Kentucky Department of Fish and Wildlife Resources (KDFWR) provided comments via the Kentucky State Clearinghouse dated October 9, 2008. To minimize impacts to the aquatic environment, the KDFWR recommends that erosion control measures be developed and implemented prior to construction to reduce siltation into waterways located within the project area. Such erosion control measures may include, but are not limited to silt fences, staked straw bales, brush barriers, sediment basins, and diversion ditches. Erosion control measures will need to be installed prior to construction and should be inspected and repaired regularly as needed. The KDFWR also listed 3 recommendations for portions of the projects that cross intermittent and perennial streams.

1) Development/excavation during a low flow period to minimize disturbance;
2) When crossing a stream, the pipe should be laid perpendicular to the stream bank to minimize the direct impacts to the streambed;
3) All instream disturbances should be returned to a stable condition upon completion of stream pipeline crossing.

The U.S. Army Corps of Engineers (USACE) was solicited for comments regarding the proposed project in a letter dated April 27, 2009. The USACE, in a letter dated June 8, 2009 stated that an authorization under Section 10 or Section 404 of the law may be required before work begins. However, the information given was insufficient for them to be certain of the need for a permit on this particular proposal. The USACE stated that needed additional detail on the project in order to determine whether a permit is required. In a response letter dated October 14, 2009, Monarch Engineering Inc., stated that they have conducted a preliminary design of this project and have determined that they will not undertake any work that would require a permit from USACE.

Impacts on Air Quality:
Kentucky Division for Air Quality Regulation 401 KAR 63:010 Fugitive Emissions states that no person shall cause, suffer, or allow any material to be handled, processed, transported, or stored without taking reasonable precaution to prevent particulate matter from becoming airborne. Additional requirements include the covering of open bodied trucks, operating outside the work area transporting materials likely to become airborne, and that no one shall allow earth or other material being transported by truck or earth moving equipment to be deposited onto a paved street or roadway. Please note the Fugitive Emissions Fact Sheet located at http://www.air.ky.gov/homepage_repository/e-Clearinghouse.htm

Kentucky Division for Air Quality Regulation 401 KAR 63:005 states that open burning is prohibited. Open Burning is defined as the burning of any matter in such a manner that the products of combustion resulting from the burning are emitted directly into the outdoor atmosphere without passing through a stack or chimney. However, open burning may be utilized for the expressed purposes listed on the Open Burning Fact Sheet located at http://www.air.ky.gov/homepage_repository/e-Clearinghouse.htm

Impacts on Forests:
There are currently no state forests but the state champion winged elm is located in the middle of the proposed project area near The Homeplace on Green River, Inc. property. Special care should be taken around this tree and those existing trees that will remain after the construction is complete. Heavy equipment should be kept away from the base of the tree to prevent wounding of the trunk or surface roots. Construction traffic should be routed away from the dripline of the tree to lessen the severity of soil compaction. Compacted soil reduces the amount of water available to the tree, and this lack of water can cause added stress. Stressed trees are vulnerable to insect and disease infestation. After construction is completed, consider replanting back suitable tree species that will meet with Campbellsville's tree planting ordinance. A copy of the tree planting ordinance should be available from the local planning commission or tree board.

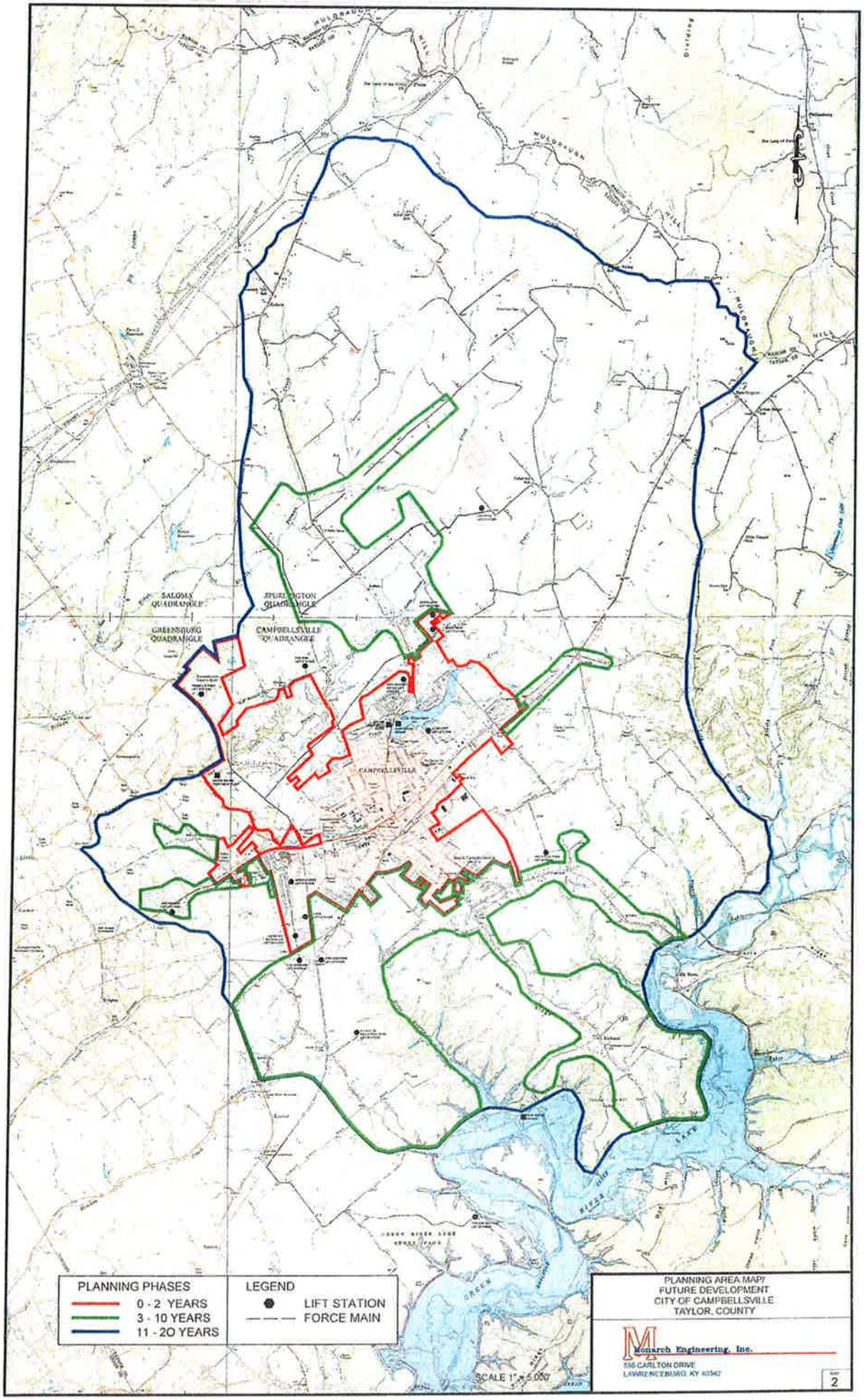
Miscellaneous Impacts:
The environmental impact of constructing the proposed facilities includes those temporary impacts of noise, dust, and traffic disruption in the construction area. The proposed project will improve the surface water and groundwater quality over the next 20 years. This action will also provide a planned development for economic growth in the planning area.

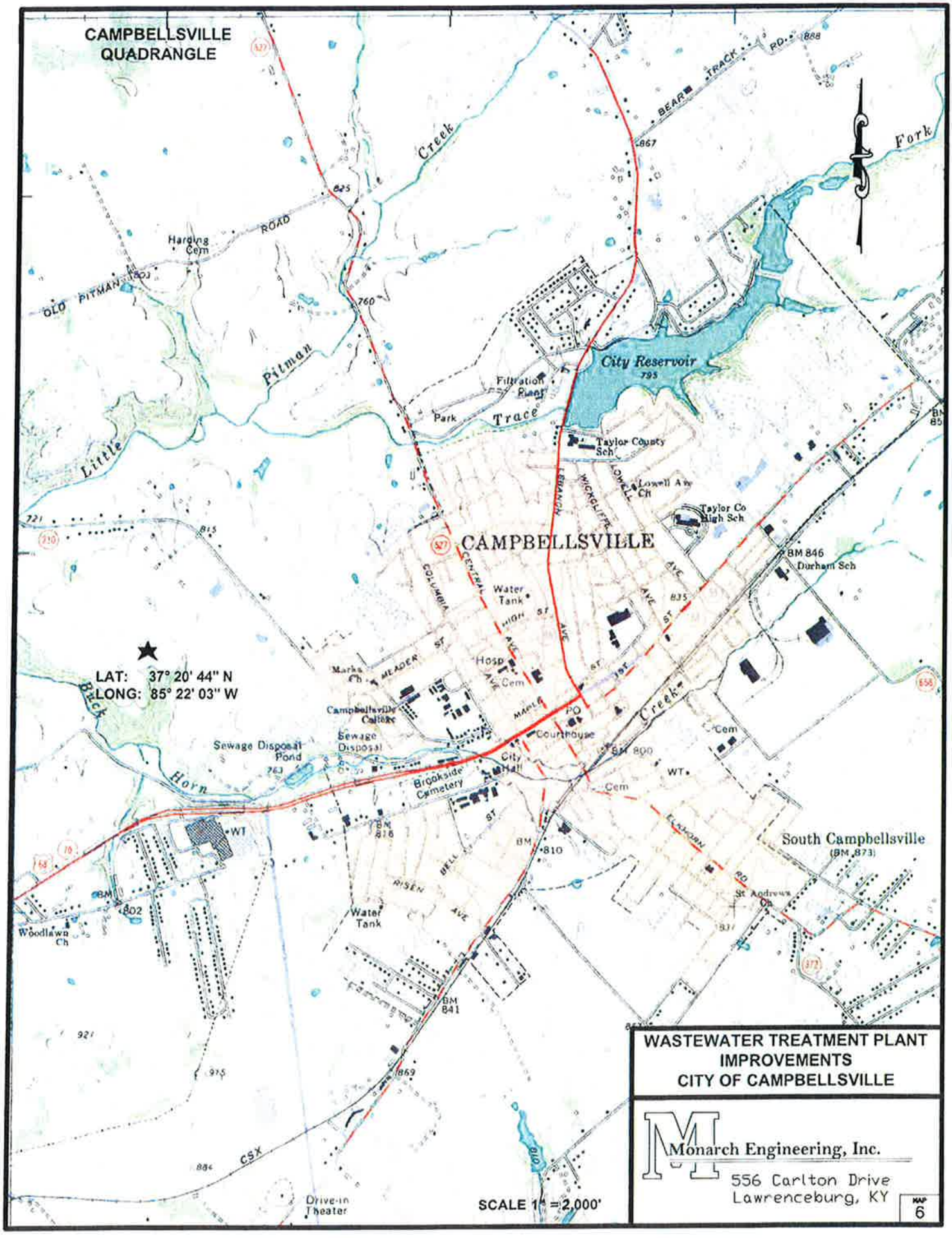
G. Public Participation and User Rates

A Public Hearing was held on Friday, August 7, 2008 in City Hall in Campbellsville. The meeting was advertised in the Central Kentucky News Journal. There was some discussion of the contents of the regional facility plan and all concerns were resolved. The Division of Water is not aware of any unresolved significant public objections, which may have been voiced before or after this hearing in relation to this project. The current monthly sewer rate is $17.46 per 4000 gallon and is not expected to increase.

H. Sources Consulted

Kentucky Department of Fish & Wildlife Resources
Kentucky Department of Natural Resources
Kentucky Division for Air Quality
Kentucky Division of Forestry
Kentucky Division of Waste Management
Kentucky Division of Water
Kentucky Heritage Council
Kentucky State Clearinghouse
Kentucky Transportation Cabinet
Natural Resources Conservation Service Web Soil Survey
U.S. Fish & Wildlife Service
U.S. Army Corps of Engineers- Louisville District
USDA Natural Resources Conservation Service
City of Campbellsville
Monarch Engineering Inc.
Lake Cumberland Area Development District
Kentucky Infrastructure Authority
Rural Development


SALOMA QUADRANGLE
SPURLINGTON QUADRANGLE
GREENSBURG QUADRANGLE
CAMPBELLSVILLE QUADRANGLE
CAMPBELLSVILLE
PLANNING PHASES
0 - 2 YEARS
3 - 10 YEARS
11 - 20 YEARS
LEGEND
LIFT STATION
FORCE MAIN
SCALE 1" = 5,000'
PLANNING AREA MAP/
FUTURE DEVELOPMENT
CITY OF CAMPBELLSVILLE
TAYLOR, COUNTY
Monarch Engineering, Inc.
555 CARLTON DRIVE
LAWRENCEBURG, KY 40342
2



WASTEWATER TREATMENT PLANT IMPROVEMENTS
CITY OF CAMPBELLSVILLE

Monarch Engineering, Inc.
556 Carlton Drive
Lawrenceburg, KY

MAP 6